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One Health: Fostering Hope for Older Adults and Homeless Companion Animals

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Abstract: The One Health model proposes that human and nonhuman animal health be addressed in tandem, considering the well-being of both, and even including the environment. However, in practice One Health initiatives usually focus on animals as disease carriers. This paper is innovative because it extends the application of the One Health model to human and nonhuman animal well-being and mental health. One of the most challenging issues in nonhuman animal welfare is the management of unwanted, abandoned, and feral animals. Many of these animals will end up in a shelter or a rescue, and whether they leave alive is often a reflection of their behavior in the shelter/rescue. Research reviewed here demonstrates that innovative programs in shelters, such as foster programs or standardized training to enable volunteers to assist shelter animals to engage in behavior modification, increase the likelihood of nonhuman animals leaving a shelter alive. The more safe and expertly guided socialization opportunities these nonhuman animals have, the better their chances are of finding a permanent home. Older adults with a lifetime of experience caring for nonhuman animals are an untapped resource for shelters/rescues. Given the well-established research that documents the positive influence of nonhuman companions on human health and well-being, it is suggested here that recruiting older adults to volunteer and/or foster shelter animals would create better outcomes for both groups. By expanding One Health initiatives to include those that enhance the well-being of both human and nonhuman animals, there is potential for a positive impact on physical, mental, and survival outcomes.

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One Health encompasses the idea that humans and nonhuman animals are all interconnected (Zinsstag et al., 2018). It is a guiding principle for programs at organizations such as the Centers for Disease Control and Prevention (CDC), the World Health Organization, and the Canadian Public Health Association. In the United States, the CDC describes One Health initiatives as the "collaborative efforts of many experts (like disease detectives, laboratorians [laboratory workers], physicians and veterinarians) working across human, animal, and environmental health to improve the health of people and animals, including pets, livestock, and wildlife" (Centers for Disease Control and Prevention, 2019, n.p.). Generally, One Health research and public health programs focus on animals as the vectors of disease (e.g., Beckwith, 2017; Zinsstag et al., 2018). However, many researchers are advocating for a more inclusive version of One Health in which the entirety of the human animal connection is included, as well as the health of the environment (Beckwith, 2017; Mindekem et al., 2017; Takashima & Day, 2014; Zinsstag et al., 2009; Zinsstag et al., 2018).

Given that companion animals such as dogs and cats generally live in the home with their human caregiver, breathing the same air, drinking the same water, being exposed to the same environmental toxins, it makes sense to consider their health needs alongside those of humans. In light of the shared risks and exposures, the One Health model would be more cost effective and better serve human and nonhuman animals if veterinary and human health sectors were to work together in program implementation. Ideas for joint human and nonhuman animal initiatives include combining cancer registries for human and nonhuman animals, conducting joint vaccination programs (Zinsstag et al., 2012) or using the same laboratory to test for human and animal diseases (Zinsstag et al., 2018). An existing One Health initiative is the mass vaccination and sterilization of dogs conducted by Mission Rabies in countries such as Tanzania, Uganda, and Malawi. This program addresses the impact of rabies, which kills approximately 36,500 children around the world annually (Beckwith, 2017). This rabies program is "saving the lives of literally thousands of people and dogs every year" (Beckwith, 2017, p. 208).

Extending the One Health model further, to include mental as well as physical health, allows for consideration of the ways in which the programs implemented for humans can benefit nonhuman animals. If mental health and well-being is included under the One Health umbrella, programs designed for human health and well-being (e.g., friendly visitor, transportation support) could also include elements of support for nonhuman companion animals (e.g., transportation could be provided to human and to nonhuman animal appointments). Programs that are developed to enhance well-being and positive outcomes for nonhuman animals could have programming for human well-being and mental health incorporated into them. For example, programs designed to combat the social isolation of older adults could be combined with programs focused on the resocialization of nonhuman animals in shelters. By merging these two programs, nonhuman animals in shelters benefit from human contact and isolated older adults are provided with opportunities to meaningfully contribute to the well-being of the shelter animals as well as interacting with each other and shelter staff. This paper takes a step further and proposes that older adults be recruited as volunteers, specifically as "foster parents" for nonhuman animals in shelters in order to improve the health and well-being of both human and nonhuman animals. Fostering is defined here as a nonhuman animal's "placement in an interim home in the community for purposes of medical or behavioral rehabilitation prior to being returned to the shelter for permanent adoption" (Patronek & Crowe, 2018, p. 3). Given the mental and physical health benefits associated with sharing a home with nonhuman companion animals, including lower health care costs and enhanced social interaction (Carver et al., 2018; Toohey et al., 2018), recruiting older adults who have extensive experience living with companion animals to foster shelter/rescue animals is a win-win situation and is consistent with the broader applications of the One Health agenda.

One Health Benefits of Nonhuman Animal Companionship

Nonhuman companion animals are an integral part of the family in societies around the world including in North America, Australia, and parts of Europe (Putney, 2013; Toohey et al., 2018). Treating companion animals as members of the family is now common (Irvine, 2004; Parry, 2005). They are named, taken into the home, loved and cared for, often as if they were human children (Parry, 2005). In naming nonhuman animals, their sentience and selfhood is acknowledged (Irvine, 2004). An overlooked aspect of One Health is that those who cohabitate with dogs and/or cats are often healthier than those who live in homes without nonhuman companions. Attachment to companion animals and social interactions involving them can have a significant and positive impact on health outcomes for people of all ages, including older adults (Curl et al., 2016). These health effects are stronger for those who feel a strong attachment to the animal than for those who consider nonhuman animals to be property (Shore et al., 2006). For some people, a companion animal can be important to social participation (Graham & Glover, 2014; Toohey et al., 2018; Wood et al., 2015). Living with a dog is generally associated with physical activity, physical health, and reduced body mass index (Anderson et al., 1992; Bauman et al., 2001; Curl et al., 2016; Filan & Llewelyn-Jones, 2006; Kushner et al., 2006).

Overall, people who share their homes with nonhuman animals self-reported very good or excellent health and are less lonely and more engaged than those without these companions (Wood et al., 2015. Other research has shown that the human-animal bond results in reduced cardiovascular disease risk (Takashima & Day, 2014), lowered blood pressure (Allen et al., 2001), lower cholesterol (Anderson et al., 1992), better surgical recovery rates, and lower incidence of loneliness and depression (Raina et al., 1999). In fact, those "people who cease to have a pet or never had one are less healthy" than those who share their lives with a companion animal (Headey & Grabka, 2007, p. 297). German and Australian researchers also demonstrated that companion animal caregivers visited the doctor 15% fewer times than those without companion animals (Headey & Grabka, 2007). Providing resources to maintain these relationships between humans and nonhuman companions actually supports and maintains the One Health goal of enhancing the health of both human and nonhuman animals.

Animal Advocacy and Sheltering

Like the One Health model's concern with the welfare of humans and nonhuman animals, animal advocacy, historically associated with the broader struggle to support the oppressed, can bring together people from heterogeneous backgrounds (Peterson, 2018). Although the majority of volunteers in rescue organizations are women, they come from all socioeconomic and education levels, as well as being ethnically diverse (Peterson, 2018). These animal advocates seek to improve the health and well-being of nonhuman animals, and often use shelters as a temporary refuge.

There are more than 12,000 shelters and animal rescue organizations in the United States actively seeking homes for abandoned and feral dogs and cats (Peterson, 2018). Many of these organizations use foster homes for various reasons including as a primary method of housing the animals they are seeking homes for, as an adjunct to traditional kennels, or to address behavioral issues or illness. According to 2018 statistics[1] collected by shelteranimalscount .org from 2,751 participating shelters in the United States, 3,497,638 animals were taken into shelters and 2,433,596 were alive when they left the shelters (this number does not include the animals who were transferred to other shelters). The intake numbers reflect a range of 73,000 to 147,000 cats and 107,000 to 133,000 dogs that were taken into shelters *per month* in the United States. The approximately 1 million animals with "other outcomes" in the 2018 shelter data are those who were euthanized (either at the owner's request or by the shelter), died, or were lost while in care.

Twenty-three percent of dogs and 25% of cats living in human families were adopted from shelters (Weiss et al., 2012). Most publicly funded shelters are open admission, which means that they take in animals regardless of medical condition or behavioral issues. This can result in issues of overcrowding and the need to euthanize healthy animals to make room for incoming animals. Some rescues take dogs from shelters that are on the list to be euthanized, often, according to Peterson (2018), choosing according to the adoptability of the dogs (preferring those that look as if they are purebred, puppies, and small dogs).

Animals that are surrendered to shelters or brought in as strays often find the shelter environment unfamiliar and frightening. Unfortunately, the fear and stress experienced by many shelter animals can result in behaviors that negatively influence their chances of adoption (Hennessy et al., 2006). Dogs and cats of all ages can become withdrawn and nonresponsive to visitors, even to staff. Volunteers and foster homes can provide enrichment and socialization for these vulnerable nonhuman animals. And research has shown that adult companion animals are more likely to be adopted if they have been socialized so that they approach and greet potential adopters (Weiss et al., 2012). If older adults, who bring a wealth of experience as caregivers of nonhuman companions, could be supported to volunteer at shelters and/or provide foster homes to abandoned dogs and cats, all species involved would have the benefit of better mental health and well-being.

Volunteering and/or Fostering

Volunteers, whether they are at the shelter or fostering, are an important part of many shelters' animal care and training programs. They provide enrichment by walking dogs, socializing dogs and cats, and helping to support adoption activities. Having the resources to increase the amount of time animals in shelters spend with people results in a greater likelihood of live release from the shelter (Weiss et al., 2012). For example, Weiss et al. (2012) found that for both cats and dogs of any age, signs of socialization were important to adopters. Reasons for choosing to adopt a particular cat at the shelter included greeting behavior, such as vocalizing and/or leaning in or rubbing on the adopter (Weiss et al., 2012). Among adopted puppies and dogs, initial interactions with adopted dogs included greeting, licking, jumping up, and tail wagging (Weiss et al., 2012). Having volunteers in the shelters and foster homes gives the shelter residents the opportunity to develop behaviors that will increase their chances of being adopted.

Friendly interactive animals clearly appeal to adopters, resulting in increased chances of successful rehoming. Nonresponsive animals can be overlooked by potential adopters and face a higher risk of euthanasia. Other behaviors that can increase the risk of being euthanized are expressing aggression and/or food guarding behaviors (Mohan-Gibbons et al., 2012). "Often dogs will use vocal behavior such as growling, snapping, barking, and snarling, and even though these sounds make people feel uncomfortable, they do not necessarily predict the probability of biting" (Mohan-Gibbons et al., 2012, p. 343). In fact, only 15% of dogs that display aggressive barking ever bite a person, and only 10% of those bites cause injury (Guy et al., 2001). These antisocial behaviors can, unfortunately, cost shelter animals their lives.

Mohan-Gibbons et al. (2012) studied adoption outcomes for food guarding dogs at a shelter. These researchers ensured that the adopters were aware that the dog they were adopting had been guarding food at the shelter and were prepared to follow a written feeding protocol (e.g., don't make a fuss about food, make sure that the dog sits before being fed, feeding small amounts at one time, feeding half of the food in a food dispensing toy, adding high-value treats to the dog's food) Results indicated there was very little food guarding behavior after adoption. In fact, out of 60 dogs who displayed food guarding in the shelter, once in a home the food guarding behavior only occurred in six dogs and subsided very quickly (Mohan-Gibbons, et al., 2012); and adopters expressed a high level of attachment to these dogs almost immediately.

Many shelters do not have the resources to initiate specialized adoption programs such as the one Mohan-Gibbons et al. (2012) created for "problem"

dogs, and shelter staff don't normally have time to implement specialized training for multiple dogs. But, developing and training an increased number of stable volunteers and foster homes can be a low-cost route to implementing behavior modification programs such as the ASPCA's (2013) antisocial behavior program. By training volunteers at the shelter and in foster homes to work with animals displaying challenging or withdrawn behaviors, shelters can increase the chances that these animals will leave the facility alive.

Part of the challenge associated with both volunteering and fostering is that every shelter has its own training program. Some of these programs are well-developed and systematic and others are well-meaning but ineffective. When training is ineffective people and nonhuman animals can be injured and live release rates can be negatively impacted because the animals are displaying inappropriate behavior (e.g., barking at potential adopters, pulling on the leash, guarding food). Bright and Hadden (2017) established that implementing an appropriate training program for humans and nonhuman animals in the shelters improved outcomes for both. The humans experienced fewer negative incidents, such as difficult to control dogs, dog bites, or burnout, and it was easier to find adoptive homes for the dogs. Their research was done at the Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA) where the dogs at the shelter were either strays, there due to law enforcement, or were surrendered by their guardians. This research project took place from 2006 to 2013 and involved the implementation of the Safewalk program, based on the Dick and Carey (1996) model. All volunteers were over the age of 16 years old and some were older adults. Bright and Hadden (2017) found that implementing this systematic training program made a difference for pit bull–type dogs, a traditionally difficult breed to place in adoptive homes due to breed-specific stigma. During the "entire 57 months post-Safewalk, the number of pit bull–type dogs made available for adoption was 345; 317 were adopted, for a rate of 91%. Non–pit bulls were adopted at a rate of 98%" (Bright and Hadden, 2017, p. 100). While the implementation of the Safewalk training program did not influence adoption rates for non–pit bull dogs, it did reduce the length of stay (LOS) from an average of 17 days to 15 days. The Safewalk training program was able to positively influence the live release rates of dogs in this shelter, demonstrating that properly trained volunteers increased the chances of survival of nonhuman animals in shelters.

Unfamiliarity with the intensive housing used in the shelter environment can also have a negative impact on survival rates. Many animals surrendered to shelters previously lived in a home with humans. The shelter environment of kenneling and multiple other animals nearby can be a very stressful environment for a dog or cat that was formerly living in a home. Foster homes can help dogs overcome problematic behavior by providing "enrichment, less competition, generally less stress, greater frequency of daily interactions with people, casual interactions around food, and possible training using food treats" (Mohan-Gibbons et al., 2012, p. 344). However, finding an adequate number of stable foster homes, with people who have experience caring for nonhuman animals, can be challenging for a shelter. If foster homes can be found, the likelihood of live release of shelter animals has been demonstrated to be much higher (Patronek & Crowe, 2018).

For example, Patronek and Crowe (2018) examined the efficacy of fostering as a means of improving outcomes for shelter dogs at the Pima Animal Care Center (PACC) in Tucson, Arizona. This shelter is open-admission, taking in every companion animal surrendered there, regardless of temperament or condition. Their annual intake is about 19,000 nonhuman animals (Patronek & Crowe, 2018). Using the shelter's database, these researchers accessed the records for dogs who were surrendered there. After eliminating those animals that were unavailable for adoption, including "dogs admitted for rabies quarantine, dogs confiscated by law enforcement, and dogs brought in by owners for euthanasia and subsequently euthanized" (Patronek & Crowe, 2018, p. 1), they analyzed 21,409 dog intake records. What they were most interested in was ascertaining whether fostering had an impact on outcome for the dogs.

The analysis of shelter records revealed that "temporary placement into interim foster homes of dogs who were either not immediately eligible or not strong candidates for adoption due to reasons such as age or health, increased the odds of live release after subsequent return to the shelter, especially for adult dogs" (Patronek & Crowe, 2018, p. 6). Interestingly, almost all of the dogs who came back to the shelter after fostering or who were returned due to a failed adoption were eventually adopted into a permanent home (Patronek & Crowe, 2018). In fact, the dogs in both of these types of returns to the shelter had approximately five times greater odds of leaving the shelter alive as compared to those dogs who were surrendered by their owners and did not get fostered. The researchers remark that "when puppies sent to foster were excluded, the effect for adult dogs was even more marked, with dogs returned from foster having over a 20-fold increase in odds of live release (OR 22.2 (95% CI: 5.48; 90.2), $p < 0.001$) compared to owner-surrendered dogs" (Patronek & Crowe, 2018, p. 7). Foster care gave these dogs a distinct survival advantage as compared to those who were not fostered (Patronek & Crowe, 2018).

Mohan-Gibbons et al. (2014) also found that fostering had a positive impact on outcomes for shelter dogs in two studies they conducted in the United States. One was a pilot fostering study at the Louisiana Society for Prevention and Cruelty to Animals (LA/SPCA) in New Orleans, Louisiana, and the other was a primary fostering study at the Charleston Animal Society (CAS), Charleston, South Carolina. In both studies dogs were randomly assigned, based on their intake number, to either an In-Shelter (IS) group, whose adoption went through traditional stages, or the experimental Adoption Ambassador (AA) group. Dogs assigned to the AA group went into a foster home within a week of arrival at the shelter and the AA was responsible for finding their permanent home. The AA foster homes were found through traditional volunteer recruitment and orientation practices at the shelters. The AA were trained by a shelter coordinator at both sites at very little cost to the shelter. "The public learned about dogs being available in the AA homes through social media, hearing about the dog from a friend, and seeing the dog wearing the adoption vest" (Mohan-Gibbons et al., 2014, p. 8). The dogs in both groups and at both locations were advertised on the shelter adoption websites.

In the primary study at CAS 84 dogs were adopted in the AA group and 64 in the IS group (Mohan-Gibbons et al., 2014). Interestingly, "the AA group took significantly longer than the IS group to move through the entire process of intake to adoption (t (146) = 5.935, p = .001)" (Mohan-Gibbons et al., 2014, p. 4). However, the longer time between intake and adoption in the AA group was not considered detrimental for the dogs since they were in a home and not experiencing the stresses commonly found in shelters (Hennessy et al., 2006). Seven percent (n = 6) of the AA dogs and 17% (n = 11) of the IS dogs were returned to the shelter. Importantly, 93% of the people who adopted a dog from the AA group reported that they were thinking about getting a dog when they were introduced to the AA dog. Since the dogs in foster care were out in the community, meeting people and interacting with them, they actually found their own homes, potentially diverting new owners away from pet stores and breeders (Mohan-Gibbons et al., 2014).

Older Adults and Fostering

Many older adults would love to share their home with a companion animal, but they live on a fixed income and worry that an unforeseen illness in their nonhuman companions may result in veterinary costs they are unable to pay; and, in most places, there are no supports available to maintain the relationships between older adults and nonhuman companion animals. Given the many quality-of-life and health-related benefits of companionship with nonhuman animals (Carver et al., 2018; Wood et al., 2015), programs that facilitate meaningful relationships between older adults and nonhuman animals such as dogs and cats result in advantages for both humans and nonhuman companion animals. One such option would be to pair older adults with shelters and rescues that are in need of volunteers who

have experience working with nonhuman animals and can provide a stable foster home. Older adults comprise a large and, for the most part, untapped population of animal lovers, many of whom have the time to volunteer at shelters and rescues.

Living with companion animals can have positive impacts on social participation as well as physical activity (Gardner, 2014; Graham & Glover, 2014; Wood et al., 2015). In fact, people who live with companion animals are "more likely to get to know people in their neighborhood" (Wood et al., 2015, p. 1), and 40% say that they have received social support from people that they knew because of the nonhuman animal they live with (Wood et al., 2015). People who live with companion animals also report better well-being than those who don't (McConnell et al., 2011). These nonhuman companions have been rated as providing as much support as human siblings or even parents (McConnell et al., 2011). Closeness with nonhuman animals does not lead to problems maintaining close relationships with other humans, suggesting that companion animals "complement other sources of social support" (McConnell et al., 2011, p. 7). For some older people, companion animals may be their only friend and the source of affection and unconditional love—which helps to bolster self-esteem and self-worth and support better interpersonal interactions (Wood et al., 2015). During bereavement strong attachment to a companion animal may be a comfort (Bolin, 1986; Garrity et al., 1989) and help to dispel loneliness (Siegel, 1990).

For the nonhuman animal, having an older adult as a companion generally means that they are paired with someone who spends time with them, is experienced in animal care, has a stable household, and can provide socialization. Of course, not all older adults are a good fit as "foster parents," and careful screening would need to be implemented. Another important factor in ensuring the success of a program pairing older adults with shelter animals is the implementation of standardized training. Given that the research reviewed above demonstrates that foster homes and specialized training is linked to live release from a shelter, pairing an older adult "foster parent" with a shelter animal can literally be the difference between life and death.

Conclusion

The One Health model involves integrating human and animal health within an environmental context. Here the One Health model has been extended to include the mental health and well-being of both humans and nonhuman animals, proposing to bring the two together in foster homes. Research indicates that innovative programs, especially those that involve volunteers who receive standardized training and those that include well-supported foster homes, result in a better chance of surviving the shelter system, particularly for dogs with behavioral challenges. If retired older adults are recruited into these volunteer and foster programs, the result could be very beneficial for both human and nonhuman animals.

The benefits to the nonhuman animal of having the extra attention provided by volunteers, and especially in a foster home, include stress reduction, increased sociability, and the potential to modify challenging behavior such as food guarding. In addition, sharing the home with a companion animal can have health protective effects for both the human and nonhuman animal (Allen et al., 2001; Bennett et al., 2015; Headey & Grabka, 2007; Xie et al., 2017). For example, physical activity is health protective and older adults generally walk their dogs for two to five hours weekly (Dzhambov, 2017). Dog walking has been linked to the maintenance of physical and mental health (Bauman, et al. 2001; Curl et al., 2016). Older adults living with dogs have "lower BMI [body mass index], fewer ADL [activities of daily living] limitations, fewer chronic health conditions, fewer physician visits, and more frequent moderate and vigorous exercise" (Curl et al., 2016, p. 937). Walking, grooming, feeding and playing with a companion animal can bring a sense of empowerment and an opportunity for an older person still to be in a caring and nurturing role, rather than being restricted to a "cared for" role (Carver et al., 2018).

Providing older adults with opportunities to help rescued and abandoned animals not only gives those animals a chance to live but gives these caregivers a simple strategy that has been associated with better physical and mental health (e.g., Bennett et al., 2015; Headey & Grabka, 2007; Xie et al., 2017). The majority of older adults are healthy; many reside in owned homes (Carver et al., 2018) and have the potential to be available to volunteer at shelters/rescues if they were encouraged to do so. This population of animal lovers has decades of experience training and caring for animals; however, they may not live with an animal currently due to financial constraints or feeling reluctant to adopt a new family member. If older adults were to be included in volunteer and/or fostering programs, their extensive experience, available time, and, often, stable housing could provide healthy and caring environments for nonhuman animals in need of medical or mental rehabilitation. For the older adults themselves, there would be the addition of meaningful work and the corresponding health benefits of human and animal companionship.

Note

1. "The [statistical] information contained herein was derived from data supplied by Shelter Animals Count. Shelter Animals Count specifically disclaims all responsibility for any analysis, interpretations, conclusions and opinions contained in the information presented." https://shelteranimalscount.org/

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